Graduate Studies at Western Michigan University - Physics

Programs: M.A. and Ph.D.

Application deadline:
March 15, with priority consideration given to completed applications submitted by February 15 for the following fall semester.

University website: wmich.edu

Department website: wmich.edu/physics

Admissions website: wmich.edu/admissions

Contact:
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Department of Physics
Western Michigan University
1903 W. Michigan Ave.
Kalamazoo, MI 49008-5252

WMU's 6 Mega-Volt tandem Van de Graaff particle accelerator has two ion sources, a pelletron charging system and serves four beam lines.

One of the nation's top 100 public universities according to US News & World Report, WMU is designated as a Research University by the Carnegie Foundation for the Advancement of Teaching. As such, we incorporate discovery, investigation and high intellectual standards into a wide variety of undergraduate, graduate and professional programs.

Nearly 5,000 graduate students are part of the University's total enrollment of nearly 23,000. We are nationally recognized and internationally engaged – large enough to offer top-notch faculty and facilities, but not so large that we lose sight of individual students and their needs.

The Department of Physics

Our faculty are engaged in advanced studies of atoms and molecules, nuclei, materials and the cosmos. Active since 1971, our versatile tandem Van de Graaff accelerator laboratory has been continually upgraded to remain state of the art. The department also has an x-ray diffractometer and a Physical Properties Measurement System (PPMS) from Quantum Design with 14 Tesla cryogen-free superconducting magnet. The PPMS allows measurements from 0.05K to 400K of magnetization, electrical conductivity, and specific heat for condensed matter physics research. External support for research is robust, as is the number and quality of WMU publications appearing in major journals. With a typical enrollment of 25 Ph.D. students, the department has granted about 3 doctoral degrees per year since 1995.

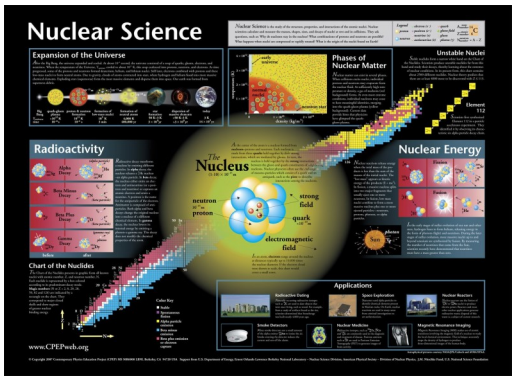
Research Connections

WMU is an associated institution with the Joint Institute for Nuclear Astrophysics - Center for the Evolution of the Elements (JINA-CEE), and our faculty have particularly strong collaborations with several national and international scientists and agencies.

Experimental studies are conducted at our own facilities and at larger national and international facilities. For example, our faculty regularly conduct research at the Advanced Photon Source at Argonne National Laboratory, the Environmental and Molecular Science Laboratory, the nearby Lurie Nanofabrication Facility and National Superconducting Cyclotron Laboratory. We also anticipate active research at the Facility for Rare Isotope Beams (FRIB) at Michigan State University, when it comes online.

Our theory faculty and students utilize the department's computer cluster, and have access to national supercomputer centers.

Nuclear Physics

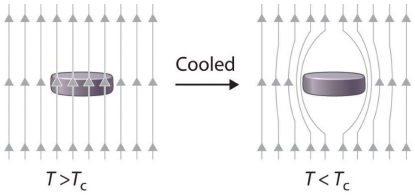


Click the photo for a larger version.

Nuclear Physics Research

Two of our tenured faculty are nuclear physicists working at the forefront of research in:

- Nuclear astrophysics, including r-process
- Nuclear reactions
- Equation of state for dense nuclear matter
- Novel theoretical approaches to the nuclear many-body problem



(a)

(b) **Meissner Effect**

Condensed Matter/Materials Physics

Condensed Matter/Materials Physics Research

Five of our tenured/tenure-track faculty are condensed matter, surface and materials physicists whose research includes: superconductivity; magnesium inelastic x-ray scattering solar cells; nanoparticle synthesis and characterization; surface science; ion beam induced defects; carbon nanotubes; hydrogen fuel cells and biological systems.

Theoretical work done includes: nonlinear optics; the dynamics of nonlinear systems; Anderson localization; dynamic Heisenberg magnetic alloys; many-body methods for correlated quantum matter; quantum transport; novel electronic band structure calculations and the quantum Hall effect.

Atomic and Molecular Physics

Atomic and Molecular Physics Research

Four of our tenured/tenure-track faculty are atomic and molecular physicists whose topics of interest include:

- Excitation and ionization of atoms/molecules
- Charge transfer processes
- Theoretical photoionization and photorecombination spectroscopy
- Atomic, molecular spectra from astronomical plasmas

Click the photo to visit hubblesite.org.
Hubble Space Telescope image of the Orion Nebula.

Kalamazoo, Michigan

Exactly halfway between Detroit and Chicago, Kalamazoo offers many advantages for graduate students and young families.

WMU's main campus is less than one mile from vibrant downtown Kalamazoo, alive with restaurants, coffee shops, brew pubs, boutique shopping and cultural venues. The city supports rich offerings in music, theatre and the visual arts.

A temperate climate allows residents to enjoy four distinct seasons, with year-round access to parks, walking and bike trails and preserved natural areas. Beaches, sand dunes and resort areas on the shore of Lake Michigan are less than an hour's drive from campus.

Best of all, Kalamazoo is a friendly, affordable place to live.